

COMPANY CONFIDENTIAL

GENERAL ELECTRIC

Information Systems Equipment Division

Phoenix, Arizona

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NUMBER:

43A177851

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Cont. on Sh. 2

Sh. No. 1

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TITLE: ENGINEERING PRODUCT SPECIFICATION, GENERAL DESIGN
 REQUIREMENTS FOR GE-655 AND GE-355 SYSTEMS

REVISION RECORD

<u>REVISION LETTER</u>	<u>DATE</u>	<u>PAGES AFFECTED</u>	<u>APPROVALS</u>	<u>AR OR AN NUMBER</u>
<i>ADJ</i> A	MAY 25 1970	ISSUED	<i>Phk</i>	
B	MAR 09 1971	Revised Sheet 1,27; Revised & Retraced Sheets 3,4,10,12,13, 19,24,25,26,28,29, 30,31,32,33,34 Deleted Sheets 35, 36,37 Added Sheet 27.1	<i>Phk</i>	ZEC-00-1575
C	SEP 21 1971	Revised sheet 1. Revised & retyped Pages 11, 14, & 31. Added page 14.1.		ZEC-00-1773
D	MAR 14 1972	Rev. Sh. 1, 8, 9,10,15,19,19.1,20, 20.1,21,21.1,22,23, 29,33; Ret. & Rev. Sh. 2.1, 2.2,12,13,14,14.1, 16,18	March 8,1972	CO ZEB-00-1432

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3.0 MECHANICAL DESIGN STANDARDS

3.1 GENERAL

Mechanical design of new 355/655 equipment shall, in the interest of performance and producibility, follow key mechanical, electromechanical and temperature control techniques, standards, parts, materials and processes which have been developed to meet large system mainframe equipment requirements. This mechanical design section describes significant aspects of these standard concepts by way of reference to key part and assembly drawings which are readily available for more detailed examination and study.

3.1.1 Main Frame Modularity

Drawing # 43D219526 delineates the assembly of standard parts, assemblies and modules of a typical single bay type 355/655 equipment unit. Drawing # 43D219576 delineates the assembly of the same or similar standard parts, assemblies and modules of a typical double bay type 655 equipment unit. Should a conflict exist between these drawings and the dimensions of paragraph 3.1.3 then paragraph 3.1.3 will govern.

3.1.2 Basic Modules

200 station plug in wire wrap panel # 43D219292
226 pin wire wrap tail connector # 43C216232
Double sided wire wrap back panel # 43D177007
Typical multilayer/wire wrap backpanel # 43D219623
Free edge to junction panel port cable # 43D219358
Free edge to junction panel common peripheral cable 43D215736
Pluggable connector to wire wrap tails # 43B216136
Data set to backpanel cable # 43C219468
Nine lamp indicator module # 43C219821
Five lamp indicator module # 43C219824
Single lamp indicator # 43B216137
Single Bay blower # 43B216130
Double Bay blower # 43B216104
Typical single bay power supply # 43D219475
Typical double bay power supply # 43D216253
Typical voltage bus # 43D219780
Single bay plenum # 43D177307
Double bay plenum # 43D177499

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3.1.2 Basic Modules (continued)

Single bay frame # 43D219689
Double bay frame # 43E177332
Typical AC control (CARE) package # 43D228350
Typical card cage # 43D177006, # 43C222463
Standard operator panel # 43C228273
Typical filter (cable) cabinet # 43D219318
Junction panel # 43E177253
Typical cabinet door #43D222040
Backpanel ground jumper # 43B219450
Board tester frame # 43D227851G1
Plenum assembly # 43D227852G1
Module assembly # 43D228540G1
Test Connector assembly # 43D228140G1
Operator panel # 43D222452G1
Relay box assembly # 43D228370G1
AC control (CARE) package # 43D228060G1
Power supply # 43D222480G1
Bus bar assembly # 43C222839 G1

3.1.3 Structural Design

Structural design shall consider applicable stiffness, redundancy, weight, modularity, handling ease, damage risk, manufacturing cost, shipping cost, operating, and maintenance constraints, limits and requirements in order to assure acceptable performance of equipment. New equipment design shall conform to or be readily capable of disassembly into modules which are compatible with published dimensional limits for containerized air freight handling. Maximum dimensions of equipment (unpacked) are:

- o Height 82 inches (2082 mm)
- o Width 27½ inches (686 mm)
- o Depth 66 inches (1674 mm)

Equipment shall be capable of installation, operation and maintenance in a room that has a minimum floor to ceiling dimension of 8 feet (243 centimeters).

3.1.4 Temperature Control

Temperature control of equipment shall be maintained by transfer of internally generated heat to room air. Cooling air which is distributed through equipment shall be filtered at fan inlets and maintained at a positive pressure with respect to room air. Cooling paths shall be arranged to provide acceptable temperature control of minimum and maximum operating equipment configurations. Air moving devices (fans) shall be designed to distribute sufficient mass flow of cooling air at specified high altitude operating environment limits.



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3.1.5 Floor Loading

The units shall not exceed the following conditions for uniform and bearing loads:

The maximum uniform loading shall not exceed 100 pounds per square foot (equivalent to 488.2 Kg per square meter). The uniform loading shall be calculated from the total active area necessary for operation, maintenance and accessibility to the unit. For this calculation at least three feet (one meter) additional space on accessible sides shall be assumed for maintenance.

The maximum bearing load shall not exceed 500 pounds per square inch (equivalent to 35.2 Kg per square centimeter). Bearing loads shall be calculated as the total weight of the unit upon the contact areas of these concentrated loads.

3.1.6 Safety Requirements

Equipment design and materials shall meet or exceed the requirements established in the latest revisions of each of the following:

- o Underwriter's Laboratories UL 478-Standard for Electronic Data Processing Units and Systems
- o National Electrical Code - 1970 (NFPA-70/ANS C1-1970)
- o National Fire Protection Association #75 - Protection of Electronic Computer/Data Processing Equipment (Building/Site)
- o ISG Standard B01.09 - General Product Safety
- o Canadian Standards Association Standard 22.2, Numbers 1, 68, and Draft 154 as guide lines.

4.0 ELECTRICAL REQUIREMENTS

4.1 AC POWER

4.1.1 Motor-Generator Sets (or equivalent power stabilizer)

☒ The voltage and frequency ratings of motors used in motor-generator sets will be determined by the voltage and frequency available at each installation.

☒ The generators used in motor-generator sets will provide 120/208 volts ac ($\pm 1\%$) 59.4 Hertz (1% slip), 3-phase wye, 5-wire connection for up to a $\pm 10\%$ motor input variation.

Motor-generator sets shall be equipped with flywheels which provide sufficient energy storage to ride through line outages of less than 1/2 second with a reduction of output frequency of no more than 5.4 Hertz and a reduction of output voltage of no more than 2.5 percent.

4.1.2 AC Power for Central System Modules

Processors, system controllers, store units, I/O modules, Datanet-355's system consoles, and drum controllers must be capable of obtaining primary ac power from one or more motor-generator sets (or equivalent power stabilizer) in order to provide sufficient isolation from noise and electrical transients caused by electric motors, fluorescent lights, etc.

The combined ac load presented by the central system modules to the MG set must be balanced at the MG set distribution panel to within 10% (A:B:C) or 1 ampere, whichever is greater.

☒ Central system modules shall be able to operate using the following form of primary power:

- ☐ 3-phase wye (120 ± 6 degrees), 5-wire connection
- ☐ Nominal 120/208 volts ac
- ☒ Nominal 60 (+0.5, -0.9) Hertz*

☒ Line-to-neutral loads shall be initially balanced such that during normal operation each phase is as near as possible to nominal voltage, and that no phase exceeds ± 2.0 percent of 120VAC line-to-neutral as measured at the input terminals of each module. A star power-distribution configuration emanating from the MG set distribution panel shall be used to prevent module interaction and ensure adequate flow of neutral currents from the modules to the motor-generator. Each module shall be designed such that line-to-neutral ac voltage variations within ± 10.0 percent of 120VAC, measured at the input terminals of the module, do not adversely affect the module's operation.

☒ *for power supplies designed to run on 50-60 Hertz the range shall be 49.1-60.5 Hertz.

4.1.3 AC Power for Peripherals

Because of the electrical noise and transients that may originate in peripheral equipment, peripheral equipment must not be connected to the same motor-generator set used for processors, system controllers, store units, I/O modules, system consoles, and drum controllers. Primary ac power for peripheral equipment can be obtained from another motor-generator, or from branch circuits that provide 120/208 volts ac (+6% -14% line-to-neutral), 60 Hertz (+0.5 Hertz, -0.9 Hertz) 3 phases (120 degrees $\pm$ 6 degrees), 5-wire wye connection.

4.1.4 Power Sequencing and Control

A means shall be provided on a system basis for:

- a) Orderly manual start-up and shutdown of all cabinets configured in the system.
- b) Emergency power shutdown per requirements of UL 478 and NFPA 70.
- c) Upon failure of input ac power, initiate "safe store" cycle in processor and memory prior to decay of MG output below 59.5 cycles.

4.1.5 Power Cables and Connectors

D All freestanding cabinets shall be connected to the ac power source by hardware (conduit) or UL and CSA approved power cord or cord set. Reference paragraph 6.3 of B01.09.

4.2 DC POWER

4.2.1 Failure Protection

D Each cabinet shall have a solid state dc power supply with protection circuitry adequate to prevent damage or energy hazard due to over- or undervoltage, or short circuit conditions. The power supply shall also protect against catastrophic failure of electronic components due to power supply malfunction.

4.2.2 Metering

Metering of voltages currents, and power-on time of the power supply will be provided and made accessible to the field engineer for normal preventative maintenance procedures without removal of the power supply assembly from the cabinet.

4.2.3 Marginal Testing

Each power supply shall provide manual and programmable means for selecting high and low voltage or current margins in addition to the normal voltage or current setting. This selection must be accomplished with the power supply in its normal mounted position.

As a maintainability aid the equipment shall be designed to operate correctly when either of the high or low voltage margins is selected. As stated this requirement is for maintainability purposes and operation at these marginal voltages is not intended for customer usage. The selectable high and low voltage margins shall be no less than 5%.

4.3 CABINET GROUNDING - ELECTRICAL

Each cabinet's frame and signal ground system shall be in accordance with paragraph 3.1.7.

4.3.1 System Grounding

Each central system cabinet will have a safety ground wire connected to the safety ground stud located in the TOL/circuit breaker box. This wire will be colored "green" or "green with yellow stripe" and will be the same size as the active phase and neutral wires in the cabinet's input AC power cord. All central system safety ground wires will be returned to the safety ground bus located in the motor generator distribution load panel. At this safety ground bus there will be one safety ground wire that is returned to the motor generator ground terminal. The customer will supply a reliable safety ground wire from the motor generator to earth ground.

Each central system cabinet will have a low impedance conductor connected at the Cabinet Ground Bracket, defined in para. 3.1.7. The other end of this low impedance conductor will be terminated at the System Controller's Cabinet Ground Bracket. This point is defined as the "Central System Ground Reference." Where there are two or more System Controllers, one will be selected to serve as the Central System Ground Reference and the other Controller(s) connected to it via the low impedance conductor. Multiple processors and memories will be treated in a like manner, in that there will be One System Controller selected as the Central System Ground Reference and all central system equipments connected to it.

There will be one low impedance conductor between the Central System Ground Reference and the safety ground terminal at the motor generator set. None of the low impedance conductors shall be permitted to electrically touch any other building ground points, raised floor supports, conduits, distribution panels, or any other metallic structures than is defined above.

D Each peripheral cabinet will have a safety ground wire connected. This wire will be colored "green" or "green with a yellow stripe" and will be the same size as the active phase and neutral wires in the cabinet's input AC power cord. All peripheral system safety ground wires will be returned to the safety ground bus(s) located in the peripheral equipments' distribution load panel(s). At the safety ground bus(s) in each peripheral equipments' distribution load panel there will be one safety ground wire that is returned to a suitable earth ground reference.

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4.4 ELECTROMAGNETIC COMPATIBILITY
4.4.1 Issued Electromagnetic Noise

Conducted noise introduced to the power mains by the equipment must not exceed the limits defined by ISG Standard B01.08, Environment, paragraph 7.1.

Electric fields radiated by the equipment must not exceed the limits defined by ISG Standard B01.08, Environment, paragraph 7.2.

4.4.2 Electromagnetic Interference from External Sources

Operation of equipment shall not be affected by high voltage spikes on power mains within the limits defined by ISG Standard B01.48, Primary Power Utility Supplied, paragraph 5.

Operation of equipment shall not be affected by magnetic fields from power mains within the limits defined by ISG Standard B01.08, Environment, Paragraph 7.4.

Operation of equipment shall not be affected by magnetic fields generated by transient currents within the limits defined by ISG Standard B01.08, Environment, paragraph 7.5.

Operation of equipment shall not be affected by electric fields generated by R.F. signals within the limits defined by ISG Standard B01.08, Environment, paragraph 7.6.

4.5 TEMPERATURE SENSING

Each cabinet shall include:

- 1) A warning - temperature sensor, and
- 2) An over-temperature sensor.

The warning-temperature sensor shall operate at a lower temperature than the over-temperature sensor and shall turn on a warning light on the operators panel of the cabinet and sound an audible alarm. Operation of the over-temperature sensor shall start a power-off sequence in the cabinet. The temperature values that will turn on a warning light and start a power-off sequence shall be determined from the characteristics of the particular module (e.g. reliability and risk at various temperature extremes).

5.0 ENVIRONMENTAL REQUIREMENTS AND CONDITIONS

5.1 OPERATING CONDITIONS

5.1.1 Temperature and Humidity

Each module shall be fully operational with cabinet in-take air temperature and humidity within the area FBGHIJF of the psychrometric chart, Figure 5.1.1, at an atmospheric pressure of 760 mm Hg. For convenience the dry-bulb temperature, wet-bulb temperature, and relative humidity for each of the six corners are tabulated below.

Point	°C		°F		%
	Dry Bulb	Wet Bulb	Dry Bulb	Wet Bulb	Relative Humidity
F	10.0	4.5	50.0	40.1	40
B	32.0	14.5	89.6	58.1	10
G	38.0	17.5	100.4	63.5	10
H	38.0	30.0	100.4	86.0	56
I	32.0	30.0	89.6	86.0	85
J	10.0	9.0	50.0	48.2	85

The maximum rate of change of temperature shall not exceed 11°C per hour (19.8°F per hour). The maximum rate of change of humidity shall not exceed 10% per hour.

5.1.2 Vibration

The equipment shall operate without deterioration when subjected to vibration perpendicular to its mounting surface within the following limits:

5 to 10 hertz	0.15g (peak)
10 to 100 hertz	0.25g (peak)

5.1.3 Barometric Pressure

Equipment shall be capable of operation at barometric pressures between 780 millimeters (32 inches or approximately 1100 ft below sea level) and 584 millimeters (23 inches) of mercury (equivalent to 7,000 ft. above sea level). The temperature and humidity limits of Figure 5.1.1 shall apply for barometric pressures greater than, or equal to, 760 millimeters (29.92 inches) of mercury (mean sea level). For operation at barometric pressures less than 760 millimeters of mercury, the maximum dry bulb temperatures of Figure 5.1.1 may be reduced by 1°C (1.8°F) for each 20 millimeters (0.7874 inch) of mercury below 760 millimeters.

5.1.4 Atmospheric Contamination

The equipment operating environment shall be protected against entry of dust particles greater than 10 microns in size by use of mechanical filters or equivalent means, and the equipment shall be capable of operating in such a protected environment.

5.2 NONOPERATING ENVIRONMENT

5.2.1 Weight

The total weight of each unit, prior to packaging, shall not exceed 600 kg. (1323 lbs.). For domestic shipments this limit can be exceeded and 907 kg (2000 lbs.) may be considered optimum.



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5.2.2 Stability

The stability requirements as specified in Group Standard B01.09 and Underwriters' Laboratories UL 478 shall govern.

5.2.3 Transportability

"Freestanding" units weighing more than 50 lbs. (24.4 kg) shall be equipped with casters to facilitate moving by hand. The load capacity of the casters shall be sufficient to permit rolling the equipment over rough or uneven surfaces.

These casters shall provide sufficient clearance so that units are capable of negotiating the transition from "level" to a 20 degree incline without hanging up or becoming balanced at the fulcrum point, and without becoming a hazard to personnel.

Units shall be designed to be moved by fork lifts or "roll-a-lifts" without risk of damage to the product and without safety hazards to personnel. Access to left points shall be without removal of covers (skins).

5.2.4 Securing of Internal and External Parts

Parts, such as doors, plug-ins, printed wiring boards, panels, etc. must be supported and fastened to prevent their becoming detached, loosened, or falling off the unit. All locking or retaining devices, necessary to prepare the unit for movement, shall be of a permanent nature, captive type, and retained with the unit as a permanent part of the product.

Instructions for use of locking or retaining devices shall be a permanent part of the equipment and updated as required.

5.2.5 Temperature and Relative Humidity

The equipment shall withstand, without significant deterioration, temperature and relative humidity levels within the area FABCHIJF of the psychrometric chart, Figure 5.2.5, for a duration of 30 days.

In addition, the equipment as packaged for shipment must withstand, without significant deterioration, an environmental shock equal to 1/2 the maximum transition possible within the area of Figure 5.2.5 within a period of 15 minutes. A "dry out" procedure is allowed, but the procedure must be part of the equipment documentation, and a WARNING label, directing the implementation of the procedure in the event of flash condensation, will be required. This WARNING shall be readily visible on or through the packaging material.

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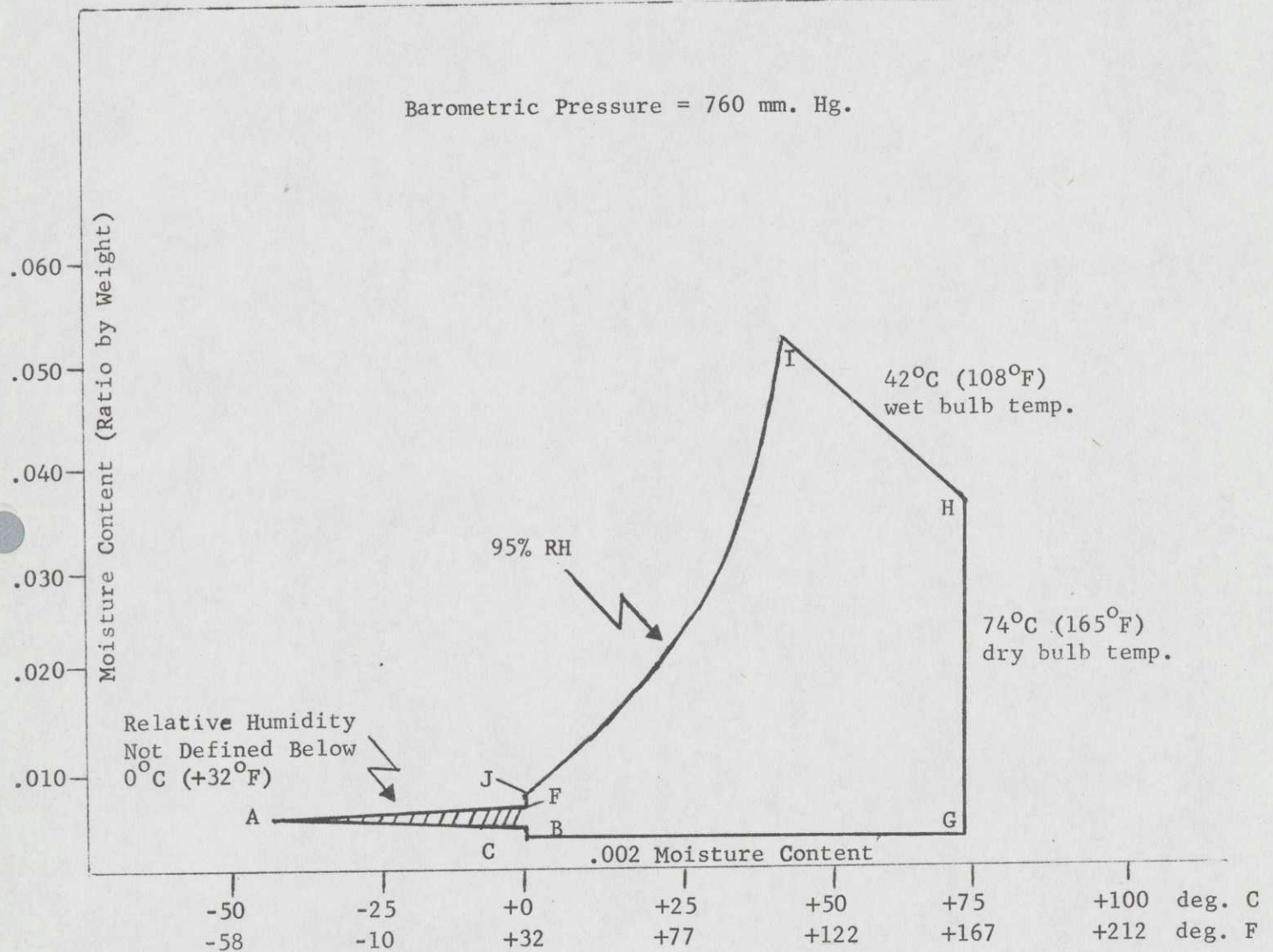


FIGURE 5.2.5
PSYCHROMETRIC CHART SHOWING NON-OPERATING ENVIRONMENT

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5.2.6 Barometric Pressure

The equipment shall be capable of withstanding atmospheric pressure variations ranging from 32 inches Hg. (780 mm Hg.) through 16.22 inches Hg. (412 mm Hg.). This range corresponds to atmospheric pressures at altitudes of approximately 1100 feet (243.84 meters) below sea level through 16,000 feet (4876.8 meters) above sea level.

The equipment shall also be capable of withstanding a maximum rate of change of pressure of 4.8 inches Hg. per minute (122 mm hg. per minute). This corresponds to change from sea level to 4000 feet (1219.2 meters) or vice versa in a one minute period.

5.2.7 Vibration

Equipment shall be capable of withstanding the following vibration test. Upon completion of the test, the equipment must meet all product specifications.

This procedure is intended to indicate whether or not a piece of equipment is adequate to withstand the rigors of vibration encountered in transportation.

On air freight and export shipments it is customary to pack all equipment in crates. Shock protection is provided if deemed necessary and size permits. On domestic U.S.A. van shipments it is customary to utilize a "Bikini Pack", wherein internal blocking and bracing is provided as necessary, but no crate is utilized. Outer covering consists of only a plastic film wrap. Under these conditions it shall be necessary for the equipment to withstand this transportation vibration test under both of these packaging concepts.

The apparatus required to perform this test is a platform of suitable size and weight carry capacity supported on a mechanism that will maintain the surface essentially horizontal as it vibrates the platform so that the vertical component of the motion is approximately sinusoidal. A rotary motion of the platform is acceptable. The amplitude of the vibration shall be 1/2 inch (1 inch double amplitude). The frequency shall be variable within the approximate range from 3 to 5 cycles per second and shall be controlled to produce the required platform vibration.

Six foot high fence barricades or blocking shall be attached to the platform to simulate the walls of a carrier vehicle, and to keep the specimen in position on the platform. This structure shall not restrict the vertical or rotational movement of the specimen more than would be expected on a carrier vehicle.



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5.2.7 Vibration (Continued)

The specimen shall be prepared with all blocking, bracing and cushioning in place as for shipment. The specimen shall then be placed on but not fastened to the platform. If the specimen might be shipped in other than an upright position, the specimen shall be placed in that position; and if more than one position is reasonable, the test shall be interrupted and the position changed so that the specimen is tested for equal periods of time in each reasonable shipping position. Unless failure occurs, the total time of vibration shall be two (2) hours if the specimen is tested in one position, and if tested in more than one position, the total time shall be three (3) hours.

The specimen shall be wrapped in a shipping blanket and strapped to the restraining fence when tested in the domestic U.S.A. van condition. When tested in the export crated condition, the crate shall be strapped to the restraining fence. The strapping should be adjusted to permit movement of the specimen from its centered position about 1/2 inch in any horizontal direction.

With the specimen in one position, vibrate the platform at 1/2 inch amplitude (1 inch double amplitude) starting at a frequency of about 3 cycles per second. Steadily increase the frequency until the package leaves the platform (i.e., until a 1/16 inch thick "feeler" may be momentarily slid freely between every point on the specimen and the platform at some instant during each cycle) or until the frequency reaches that at which the maximum platform acceleration is 1 ± 0.1 times the acceleration of gravity. While observing to detect development of any failure, continue to vibrate at such frequency until the total time of vibration in the position is completed.

If the specimen is to be tested in more than one position, repeat the previous test for each position.

5.2.8 Shock

Extreme values of shock will occur during handling operations, when the equipment may or may not be crated or otherwise secured. To protect against this type of damage the equipment shall be capable of withstanding the following tests. The equipment must also meet all product specifications upon completion of this test.

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5.2.8 Shock (Continued)

- o. The equipment must be able to withstand the shock produced by rolling the equipment (uncrated) off a one (1) inch (2.54 cm) thick steel plate onto a solid concrete floor at a velocity of one (1) foot per second. This test is to be repeated four (4) times. (One test made so that equipment rolls off diagonally to allow each castor to roll off independently.) And,
- o. If the equipment is of such a weight, size and configuration, and requires packing in a cushioned skidded container, it shall also be subjected to the edgewise drop test of figure 5.2.8. The equipment must also meet all product specifications upon completion of this test.

DROP TEST - SMALL PACKAGES - The test simulates maximum normal handling of packaged products weighing under 100 pounds (45.3 Kg). The procedure for identifying faces, edges and corners of containers shall be as follows:

Face one end of the container, with the manufacturer's joint, if any, at the right edge of the top surface, designate the top of the container as one, the right side as two, the bottom as three, the left side as four, the near end as five, the far end as six.

Identify the edges by the numbers of the two faces that form the edge.

Example: 1-2 identifies the edge formed by top and right side.

Identify the corners by the number of the three faces that meet to form that corner.

Example: 1-2-5 identifies corner formed by the top, right side, and the near end.

To simulate handling encountered in all modes of transport including export but other than parcel post, the packaged product shall be dropped from the prescribed height in the following sequence which constitutes a drop test cycle:

- Flatwise drop on side number one.
- Flatwise drop on side number two.
- Flatwise drop on side number three.
- Flatwise drop on side number four.
- Flatwise drop on side number five.
- Flatwise drop on side number six.



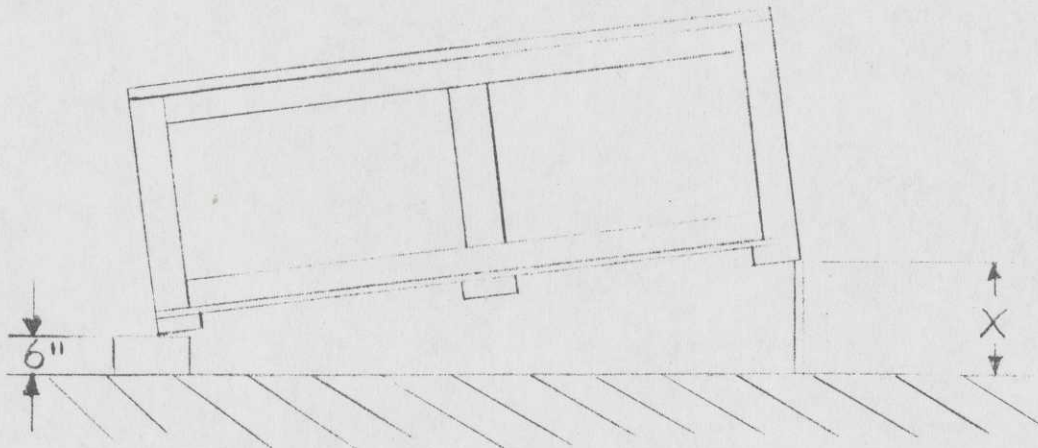
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WEIGHT (In Pounds)	DIMENSIONS ON ANY EDGE NOT EXCEEDING	DROP HEIGHT "X"
Over 100 Thru 600 (45.3 kg - 272 kg)	36" Thru 72" (91.4 cm - 182.8 cm)	12"(30.4cm)
601 Thru 3000 (272 kg - 1361 kg)	73" Thru No Limit (185.3 cm)	9"(22.9cm)

This test to be performed once on each end if used to qualify the equipment.

Figure 5.2.8

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5.2.8 Shock (Continued)

A corner drop on either the 5-1-2 corner or on the corner which may be most prone to damage.

An edge drop on the sortest edge radiating from that corner.

An edge drop on the next shortest edge radiating from that corner.

An edge drop on the longest edge radiating from that corner.

Prescribed height-determined by size and weight of the package product.

Weight in Pounds (Kg)		Height of drop in inches (Meters)			
		Size Cubic Feet (Meters)			
Over	Through	0-10 (3.04)	10-20 (6.1)	20-30 (9.1)	Over 30
0	25 (11.3)	30 (.76)	24	18	12
25 (11.3)	30 (13.6)	27 (.68)	24 (.61)	18 (.46)	12 (.32)
30 (13.6)	35 (15.8)	24 (.61)	24	18	12
35 (15.8)	40 (18.1)	21	21 (.53)	18	12
40 (18.1)	45 (20.4)	18	18 (.46)	18 (.46)	12
45 (20.4)	50 (22.6)	15	15 (.38)	18	12 (.32)
50 (22.6)	100 (45.3)	12	12 (.32)	12 (.32)	12

To simulate handling encountered in parcel post shipping, the packaged product shall be dropped from 36 inch (.934 meters) height on all corners. In addition, an 8 pound (3.6 Kg) weight simulating a corrugated box shall be dropped from a height of 12 inches (.304 meters) onto the three sides or edges of the packaged product which are most prone to damage. The impact should be concentrated at a point in the center of the side or edge.



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5.2.9 Equipment Orientation

Generally the equipment is handled, transported and stored in its normal operating position. However, the equipment should be designed so that it could be handled or shipped laying down if the necessity should arise.



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Low-level signals shall be used to communicate with the GE-635 port. This signal is specified as follows:

Logic "1"	0.62V (min) to 0.8V (max)
Logic "0"	0.0V (min) to 0.1V (max)

Pulse repetition rates up to 500 kHz shall be processed by this interface.

Signals to the common peripheral interface are specified by 43A130524. Bipolar pulses shall be processed over this interface and the signal is specified as follows:

Transmitter -

Pulse Width	50 ns $\pm$ 10 ns @ $\pm$ 1.5V level
Pulse Amplitude	$\pm$ 4.0V (min) to $\pm$ 5.0V (max)

Receiver -

Pulse Width	20 ns (min) @ $\pm$ 1.5V level
Pulse Amplitude	$\pm$ 2.5V (min)

The TTL circuit set shall consist of five generic types, each type having an inherent circuit speed.

Plus 5 volts shall be the standard logic voltage and it shall be distributed to every logic board in the cabinet. In addition, logic ground shall be distributed throughout the cabinet and it shall be isolated from cabinet ground, except at one point where it shall be made common near the power supply output.

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Voltage (+5V) and ground planes shall be used to distribute power to every IC on the logic board. Pin #4 shall be used to connect the +5 volts to the IC, and Pin #10 shall be used for the logic ground connection.

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TITLE: ENGINEERING PRODUCT SPECIFICATION, GENERAL DESIGN
REQUIREMENTS FOR GE-655 AND GE-355 SYSTEMS7.0 EXCEPTIONS/DEVIATIONS FROM GROUP STANDARDS

This specification contains exceptions or deviations from proposed group standards as listed below. All such exceptions and deviations require the approval of the Director - PCO Engineering and the Director - Large Systems Product Marketing.

- o B01.08, Environment, paragraph 4.2.1 requires equipment to be capable of being in a power-on state for dry-bulb temperatures between 38°C (100.4°F) and 46°C (114.8°F), for wet-bulb temperatures between 30°C (86°F), and 35°C (95°F), and for relative humidities 5% to 10%, and 85% to 95%. (Reliable operation is not required by the group standard under these conditions). This specification does not specify a similar requirement.
- o B01.08, Environment, paragraph 4.3.3, requires equipment to withstand corrosive contaminants and non-corrosive and non-conductive particles. This specification is concerned only with dust particles and specifies the limits in a different way.
- o B01.08, Environment, paragraphs 8.1.2 - 8.1.5 specifies where ventilation air may be expelled, the maximum velocity of expelled air, and the absolute maximum temperature of expelled air. This specification does not specify requirements for expelled air, other than maximum temperature relative to room ambient temperature.
- o B01.48, Primary Power - Utility Supplied, paragraph 6.7 specifies requirements for convenience outlets. This specification does not specify requirements for convenience outlets.